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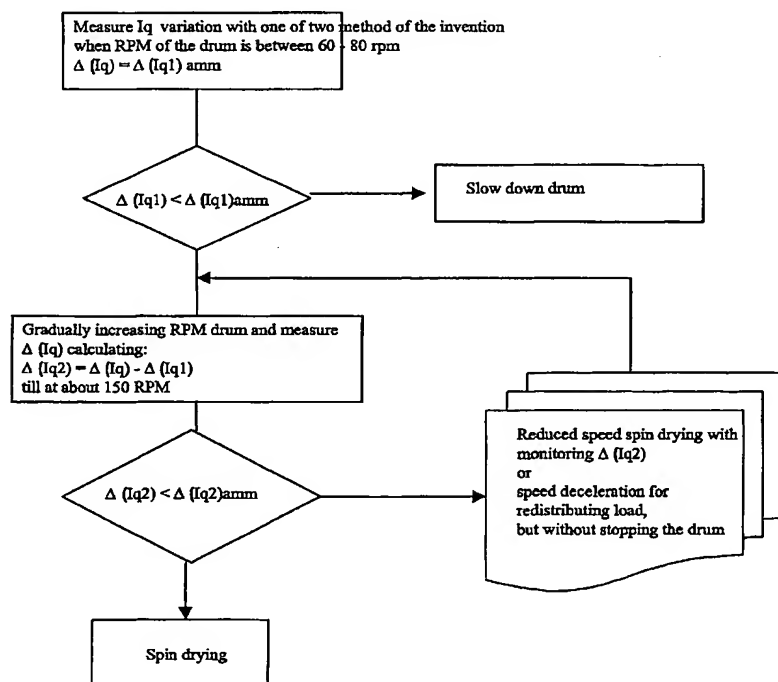
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(54) Title: **METHOD FOR DETECTING UNBALANCED CONDITIONS OF A ROTATING LOAD DRIVEN BY A SYNCHRONOUS MOTOR AND FOR CONTROLLING SAID MOTOR**



(57) Abstract: The invention relates to a method for detecting unbalanced conditions of a rotating load driven by a synchronous electric motor (3) in washing machines (1) and similar rotably drum (2) household appliances and wherein at least a transient step is provided with variation of the angular speed (w) of the rotably drum (2). The method provides the following steps: constantly monitoring the instantaneous current (Iq) absorbed by the motor calculating in real time the unbalanced mass (m) on the basis of the variation (Δ) of the current (Iq) and starting from a predetermined reference and by applying a calculation formula representative of the kind of load imbalance. Moreover, the imbalance signal may be computed as a difference between the last sampled value of the current signal (Iq), in the time instant wherein the absolute value of the first derivate of said current signal (Iq) is minor than a predetermined threshold and the second derivate of the same signal Iq is positive, and the last sampled value of said current signal (Iq) in the time

instant wherein the absolute value of the first derivate of said current signal (Iq) is minor than a predetermined threshold and the second derivate of the same signal Iq is negative. current driving the motor (3) according to said unbalanced mass (m).

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